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API ANCO PRODUCTS, INC.

RECEIVED DECEMBER 28, 1988
JAN 03 1989

Ms. Susan Swales (5HS-11)
Waste Management Division
U.S. EPA Region V
230 S. Dearborn Street
Chicago, IL 60604

SUPERFUND PROGRAM
MANAGEMENT BRANCH

Re: Himco Landfill - Elkhart, Indiana

Dear Ms. Swales:

Attached is our response to your letter received on November 14, 1988. A request for extension was made to you via telecom on 12/16/88 and granted to 12/31/88. As we discussed at that time, our response is primarily directed to the period of time between 1960 and 1978.


In preparing this response, a search of records at our Elkhart offices as well as those of our Parent Company (A.P.I. St. Paul, Minn) and our local insurance agent was made. Due to the passage of time, most, if not all, of the records, documents, etc. requested relating to this matter no longer exist.

Further, it should be understood that all members of present management as well as the entire office staff joined ANCO PRODUCTS, INC. on or after June 1, 1981. This management change resulted from the abrupt resignation of the entire former management group and office staff to start a similar and competing business in Elkhart.

The limited information we can provide is based in part upon the recollections of three production workers still at ANCO who were employed by us during the period in question, therefore almost all of the information we were able to provide is anecdotal and undocumented.

Should the corporation become aware of any additional information or any information which would alter one of the responses it has made, that new information will immediately be submitted to the Environmental Protection Agency. If you have any questions, please contact me.

Sincerely,
ANCO PRODUCTS, INC.


H. Tomlinson
President

HT/cl's

ANDERSON PRODUCTS, INC./DBA ANCO PRODUCTS, INC.
2500 S. 17th STREET
ELKHART, IN 46517

Re: HIMCO LANDFILL - ELKHART, INDIANA

The following is the response of Anderson Products, Inc. to the Environmental Protection Agency's request for information regarding Himco Waste-Away and Himco, Inc. and is numbered in the same manner as the requests. Pursuant to our telephone conversations with your office no information is included for periods after 1978 unless specifically requested.

1. Description of business, including:

(a) Type of work performed: During the period in question the corporation manufactured non metallic flexible air ducts, insulated and uninsulated for the heating and air conditioning industry.

(b) Manufacturing process: Based on information obtained from employees and Underwriters Laboratories files, the manufacturing process was believed to be as follows: "Tedlar", and or aluminum foil "Mylar" strip approx. .0005 to .0009 in thickness was continuously fed through a series of rollers encapsulating an .041, .078 gage galvanized spring steel wire. The film and wire were spirally wound while a thin .010, stripe of thermoplastic Polymide resin was applied and sealed to form a continuous circular duct core. This core if insulated, was wrapped with a layer of Fibrous glass insulation .75 lb ft³ density x 1 1/2" thick. This in turn was covered with an aluminized "Mylar" scrim reinforced sleeve or vapor barrier. Sheet metal fittings were applied by means of reinforced duct tape to other end. (*Tedlar, Mylar are trademarks of the Dupont Corp.)

(c) Wastes Generated: It is believed the manufacturing process generated scrap plastic, metal, fiberglass and packing materials such as wood and corrugated paperboard. Additionally, a small amount of general office waste was generated.

(d) Waste disposal practices: All the wastes generated were hauled away by a commercial hauler but no information is available regarding the identity of the transporter and none of the current employees has a recollection of who the transporter was.

(e) SIC NUMBER 32 96

2. No information is available regarding the generation or disposal of any hazardous wastes prior to 1981. Based on current standards, we do not believe any hazardous wastes were generated during the time in question.

3. No information is available regarding any arrangements for disposal of waste materials with Himco, Inc., Himco Waste-Away, or any other company before 1981.

4. No information or documents are available regarding the referenced site (see response to question number 3).

5. No information is available regarding any material that may have been transported to the referenced site (see response to question number 3).

6. No information is available regarding the volume of any materials that may have been transported to the referenced site (see response to question number 3).

7. No specific information is available regarding the chemical composition of any materials which may have been transported to the referenced site. (see response to question number 3). To the extent similar products are used in current manufacturing processes, material data sheets regarding these products are attached.

8. Our Insurance Agency is unable to provide records prior to 1981 and the Company has no available information on these policies.

These answers have been prepared by the undersigned Howard Tomlinson, a duly elected officer of Anco Products, Inc. and are to the best of his knowledge and belief true and correct.

ANCO PRODUCTS, INC

By: *Howard Tomlinson*
Howard Tomlinson, President

STATE OF INDIANA)
)SS:
COUNTY OF ELKHART)

The above identified Howard Tomlinson personally appeared before me and acknowledged that he is the duly elected and acting president of ANCO PRODUCTS, INC. and that he has answered the section 104 (e) requests of the Environmental Protection Agency previously submitted to the Corporation, to the best of his knowledge.

Gary D. Euff
Notary public
Residing in Elkhart County, IN

My Commission Expires:

GARY D. EUFF, Notary Public
Residing in Elkhart County, Indiana

~~My Commission Expires April 12, 1991~~

MATERIAL SAFETY DATA SHEET

9A)

Date: November 18, 1985

SECTION I

MANUFACTURER:

E. I. du Pont de Nemours & Co., Inc.
Finishes & Fabricated Products Department
Wilmington, DE 19898

PRODUCT: Tedlar® PVF Film

TELEPHONE: 1-800-441-7515 - Product Information Phone
1-800-441-3637 - Medical Emergency Phone
1-800-424-9300 - Transportation Emergency Phone (Chemtec)

SECTION II - INGREDIENTS

<u>INGREDIENTS</u>	<u>CAS NO.</u>	<u>WT. % (LESS THAN)</u>	<u>EXPOSURE LIMIT</u>
Polyvinyl fluoride	24981-14-4	99-80%	None
Dimethylacetamide (DMAC)	127-19-5	1% Max.	10ppm, skin-ACGIH
Pigment		1-20%	Encapsulated Not hazardous

SECTION III - PHYSICAL DATA

EVAPORATION RATE: Not applicable

VAPOR DENSITY: Not applicable

SOLUBILITY IN WATER: Insoluble

PERCENT VOLATILE: 0.005 to 1% max.

APPROXIMATE BOILING RANGE: Not applicable

DENSITY: Approximately 1.4 (H2O=1)

SECTION IV: FIRE & EXPLOSION DATA

FLASH POINT (METHOD): Not applicable

APPROX. FLAMMABLE LIMITS: Not applicable for a film

EXTINGUISHING MEDIA: Foam, carbon dioxide, dry chemical

SPECIAL FIRE FIGHTING PROCEDURES: Full protective equipment, including self-contained breathing apparatus, is recommended to avoid exposures to hydrogen fluoride.

UNUSUAL FIRE & EXPLOSION HAZARDS: Tedlar® does not readily burn or support combustion. Tedlar® will not contribute significantly to the danger associated with fire in a residential or industrial structure because the volume of carbon monoxide and other gases produced in a fire will present a greater hazard than the volume of carbon monoxide and hydrogen fluoride produced by this film.

SECTION V - HEALTH HAZARD DATA

ROUTE OF ENTRY: Symptoms/effects of overexposure and first aid.

INGESTION: This is not considered a hazard with Tedlar® film.

INHALATION: At processing temperatures DMAC will be released in small quantities. DMAC is harmful if inhaled. Overexposure may cause eye, nose and throat irritation and headache. Long term overexposure may cause liver and kidney damage. Based on tests with some laboratory animals, DMAC may affect the fetus and may be a developmental toxin. However, these dose levels also produced toxicity in the adult animals. In the unlikely event of an acute inhalation overexposure, remove to fresh air.

SKIN OR EYE CONTACT: No hazard with film. In case of skin contact with vapor, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician.

SECTION VI - REACTIVITY DATA

STABILITY: Stable

CONDITIONS TO AVOID: At temperatures above 400°F (204°C) small amounts of hydrogen fluoride (3ppm ceiling - ACHIH) can be evolved. Adequate ventilation must be provided. Hydrogen fluoride is toxic and can cause skin and eye irritation. High concentrations can cause burns. Inhalation overexposures can cause lung damage and pulmonary edema. Vegetation is particularly sensitive to damage by hydrogen fluoride and attention must be given to location of exhaust vents.

INCOMPATIBILITY: (Materials to avoid) None reasonably foreseeable

HAZARDOUS DECOMPOSITION: Hazardous decomposition products: CO, CO₂, smoke, hydrogen fluoride.

HAZARDOUS POLYMERIZATION: Will not occur

CONDITIONS TO AVOID FOR HAZARDOUS POLYMERIZATION: Not applicable

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Not applicable

WASTE DISPOSAL METHOD: Dispose of Tedlar® as landfill; if burned hydrogen fluoride will be liberated.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY: Not applicable

VENTILATION: Provide sufficient ventilation in volume and pattern to keep dust below applicable OSHA and ACGIH requirements.

PROTECTIVE GLOVES: Not applicable

EYE PROTECTION: Desirable in almost all industrial situations.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Observe label precautions. Keep away from heat, sparks and flame.

OTHER PRECAUTIONS: Not applicable

SECTION X - NOTES

NOTICE: The data in this Material Safety Data Sheet relate only to the specific material designated herein and do not relate to use in combination with any other material or in any process.

TITLE: Product Manager - Tedlar®

HENKEL CORPORATION
MINNEAPOLIS, MINNESOTA

Henkel

MATERIAL SAFETY DATA SHEET

HAZARD RATINGS

HEALTH HAZARD	1
FLAMMABILITY HAZARD	1
REACTIVITY HAZARD	1
SPECIFIC HAZARD	N/A

SECTION I - PRODUCT IDENTIFICATION

PRODUCT TRADE NAME	FORMULA/MOLECULAR WEIGHT
MACROMELT 6208	N/A - POLYMER
CHEMICAL NAME/SYNONYMS	CAS NUMBER
POLYAMIDE RESIN	68911386
COMMON NAME	DOT HAZARD CLASSIFICATION
POLYAMIDE RESIN	NOT RESTRICTED
TECHNICAL CONTACT NAME	TELEPHONE NUMBER
BRENDAN J. MURPHY	612/378-8615
	EMERGENCY TELEPHONE NUMBER
	800-424-9300

SECTION II - PRODUCT DESCRIPTION

APPEARANCE	ODOR
LIGHT AMBER CHOPPED ROD	SLIGHT RESINOUS

PHYSICAL DATA	
MELTING POINT	150-160 C
SPECIFIC GRAVITY	0.980
WATER SOLUBILITY	NEGLECTIBLE
PERCENT VOLATILES AT 70 F	NONE

HAZARDOUS COMPONENTS: NAME	CAS NUMBER	CONTENT	HAZARD	TLV
THIS PRODUCT IS NOT MANUFACTURED TO CONTAIN A REPORTABLE HAZARDOUS COMPONENT AS DEFINED IN 29 CFR 1910.1200.				

SECTION III - FIRE AND EXPLOSION DATA

FLASH POINT / °F	TEST METHOD
N/A	N/A
RECOMMENDED EXTINGUISHING MEDIA	
<input checked="" type="checkbox"/> WATER	<input checked="" type="checkbox"/> CO ₂
<input checked="" type="checkbox"/> FOAM	<input checked="" type="checkbox"/> OTHER DRY CHEMICAL

UNUSUAL FIRE OR EXPLOSION HAZARDS (CONDITIONS TO AVOID)

NONE KNOWN TO HENKEL.

SPECIAL FIRE FIGHTING PROCEDURES

NONE KNOWN TO HENKEL.

SECTION IV - REACTIVITY DATA

STABILITY UNDER NORMAL CONDITIONS	
<input checked="" type="checkbox"/> STABLE	<input type="checkbox"/> UNSTABLE (CONDITIONS TO AVOID)
INCOMPATIBLE MATERIALS (MATERIALS TO AVOID)	
<input checked="" type="checkbox"/> NONE KNOWN	<input type="checkbox"/> WATER
<input type="checkbox"/> ACID	<input type="checkbox"/> BASE
<input type="checkbox"/> OXIDIZERS	<input type="checkbox"/> OTHERS
HAZARDOUS POLYMERIZATION	
<input checked="" type="checkbox"/> WILL NOT OCCUR	<input type="checkbox"/> MAY OCCUR (CONDITIONS TO AVOID)


PRODUCT TRADE NAME MACROMELT 6208

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SECTION V - ACUTE HEALTH AND SAFETY DATA

TEST TYPE	RESULT	ANIMAL SPECIES	HAZARD DESCRIPTION
ORAL TOXICITY (1)	>5 G/KG EST LD50	RAT	SLIGHT
DERMAL TOXICITY (1)	>2 G/KG EST LD50	RABBIT	SLIGHT
SKIN IRRITATION (1)	0 0-8 RANGE	RABBIT	RELATIVELY HARMLESS
EYE IRRITATION (1)	5.3 0-110 RANGE	RABBIT	SLIGHT
DOT CORROSIVITY (1)	NEG -	RABBIT	RELATIVELY HARMLESS
(1) EST FROM TESTS OF ANALOGOUS PRODUCT			

SECTION VI - HANDLING PRECAUTIONS / FIRST AID RECOMMENDATIONS**SKIN AND EYE CONTACT:**

NOTICE: MAY BE HARMFUL ON PROLONGED OR REPEATED CONTACT WITH SKIN. MAY CAUSE IRRITATION. PROTECT EYES, SKIN AND CLOTHING FROM CONTACT. WASH THOROUGHLY AFTER HANDLING.

FIRST AID: IN CASE OF EYE OR SKIN CONTACT, FLUSH WITH PLENTY OF WATER.

ORAL INGESTION:

NOTICE: MAY BE HARMFUL IF SWALLOWED IN LARGE QUANTITIES.

FIRST AID: IF SWALLOWED, IMMEDIATELY DRINK A LARGE QUANTITY OF MILK OR WATER AND CALL A PHYSICIAN.

*THE PRECEDING WAS ESTIMATED FROM SAFETY DATA FOR AN ANALOGOUS PRODUCT.

SECTION VII - SPILL PROCEDURES**STEPS TO TAKE IF SPILLED**

PICK UP SPILLED MATERIAL AND CONTAINERIZE. VACUUM AREA OR FLUSH WITH WATER TO REMOVE RESIDUES.

WASTE DISPOSAL

THIS PRODUCT, IF DISPOSED AS SHIPPED, IS NOT A HAZARDOUS WASTE AS SPECIFIED IN 40 CFR 261. DISPOSE OF IN AN APPROVED LANDFILL IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.

SECTION VIII - SPECIAL PROTECTION INFORMATION**VENTILATION REQUIREMENTS**

☐ GENERAL AREA EXHAUST ☒ LOCAL EXHAUST ☐ NOT NECESSARY UNDER NORMAL USE CONDITIONS

PERSONAL PROTECTIVE EQUIPMENT RECOMMENDED FOR NORMAL USE CONDITIONS

<input checked="" type="checkbox"/> EYE PROTECTION TYPE: SAFETY GLASSES	<input checked="" type="checkbox"/> SKIN PROTECTION TYPE: INSULATED GLOVES	RESPIRATORY PROTECTION TYPE: N/A WITH LOCAL EXHAUST
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SECTION IX - SPECIAL PRECAUTIONS

MOLTEN RESIN MAY CAUSE SEVERE BURNS. IF SKIN/EYE CONTACT OCCURS, IMMEDIATELY COOL WITH COLD WATER. DO NOT REMOVE RESIN. GET MEDICAL HELP FOR REMOVAL.
CONTINUED ON NEXT PAGE

THE INFORMATION SUPPLIED HEREIN RELATES TO THE PRODUCT NAMED AND IS BASED UPON INFORMATION HENKEL CORPORATION CONSIDERS TO BE ACCURATE. NO WARRANTY, EXPRESS OR IMPLIED, IS INTENDED. THIS INFORMATION IS OFFERED SOLELY FOR YOUR CONSIDERATION AND INTERPRETATION.

PREPARED BY: BRENDAN J. MURPHY

DATE PREPARED

11/05/85

8-85 DJ585

HenkelPRODUCT TRADE NAME **MACROMELT 6208**

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SECTION V - ACUTE HEALTH AND SAFETY DATA

TEST TYPE	RESULT	ANIMAL SPECIES	HAZARD DESCRIPTION

SECTION VI - HANDLING PRECAUTIONS / FIRST AID RECOMMENDATIONS**SECTION VII - SPILL PROCEDURES**

STEPS TO TAKE IF SPILLED

WASTE DISPOSAL

SECTION VIII - SPECIAL PROTECTION INFORMATION

VENTILATION REQUIREMENTS

☐ GENERAL AREA EXHAUST ☐ LOCAL EXHAUST ☐ NOT NECESSARY UNDER NORMAL USE CONDITIONS

PERSONAL PROTECTIVE EQUIPMENT RECOMMENDED FOR NORMAL USE CONDITIONS

☐ EYE PROTECTION
TYPE:☐ SKIN PROTECTION
TYPE:☐ RESPIRATORY PROTECTION
TYPE:**SECTION IX - SPECIAL PRECAUTIONS**

STATIC DISCHARGE POSSIBLE. IN PRESENCE OF FLAMMABLE OR COMBUSTIBLE LIQUIDS, TAKE ACTION TO MINIMIZE IGNITION BY GROUNDING, INERTING, ETC.

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PREPARED BY: **BRENDAN J. MURPHY**DATE PREPARED: **11/05/85**

5-85 DJ585



MATERIAL SAFETY DATA SHEET

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MANUFACTURER: Owens-Corning Fiberglas Corporation

ADDRESS: Fiberglas Tower, Toledo, OH 43659

PHONE: For information purposes 8:00 AM - 5:00 PM Eastern Time

Telephone: (419) 248-8234

FOR EMERGENCY: After 5:00 PM Eastern Time

Telephone: (419) 248-5330

DATE OF PREPARATION: September 30, 1985

PRODUCT NAME(s): DOES NOT INCLUDE Molding Media

Fiberglas® Insulation, Kraft Faced Insulation, Foil Faced Insulation, Blowing Wool, ThermaCube® Insulation, Type M Plus, Aerocor® Insulation, Appliance Insulation, ASJ Pipe Covering, Pipe Wrap, 700 Series Industrial Insulation, Navy Board, Hull Board, Marine Insulation, Ceiling Panels, 475 FRK Duct Board, Aeroflex® Duct Liner, Duct Wrap, Molded Pipe, Sill Sealer, Mobile Home Insulation, Warm-N-Dri™ Insulation, CW225 Insulation, Flame Spread 25 Insulation, Sonobatts, Commercial Use Board, Noise Barrier Batts, Roof Insulation

SECTION I - COMPONENT DATA

HAZARDOUS INGREDIENTS

COMMON NAME	CHEMICAL NAME	C.A.S. NUMBER
Fiberglass	Fibrous Glass	65997-17-3

SECTION II - PHYSICAL DATA

BOILING POINT (°F): NA*

SPECIFIC GRAVITY (H₂O=1): ND

MELTING POINT: NA

VAPOR PRESSURE (mmHg @ 20°C): NA

PERCENT VOLATILE BY VOLUME: NA

VAPOR DENSITY (AIR=1): NA

EVAPORATIVE RATE (ETHYL ETHER=1): NA

*NA = Not Applicable

**Not Determined

SOLUBILITY IN WATER: Insoluble

pH: NA

APPEARANCE AND ODOR: Pink, yellow, tan or black insulation/may have faint resin odor. Some products have a vinyl, kraft paper, foil or polypropylene facing.

SECTION III - FIRE & EXPLOSION HAZARD DATA

FLASH POINT (°F): NA

METHOD USED: NA

FLAMMABILITY LIMITS:

LEL: NA

UEL: NA

AUTO-IGNITION TEMPERATURE (°F): NA

EXTINGUISHING MEDIA: Water, Foam, Dry Chemical

SPECIAL FIRE-FIGHTING INSTRUCTIONS:

None required.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

The facing on kraft paper and foil faced products will burn and should not be left exposed. Special care should be taken when working close to the facing with an open flame. Vinyl faced products in fire conditions may give off hydrogen chloride, a highly irritating and toxic gas. Evacuate the building immediately.

SECTION IV - REACTIVITY DATA

STABILITY (CONDITIONS TO AVOID):

Stable (none)

INCOMPATIBILITY (MATERIALS TO AVOID):

None

HAZARDOUS DECOMPOSITION PRODUCTS:

Facing and binder burns or decomposes in a fire-primary combustion products are carbon monoxide, carbon dioxide and water. Vinyl faced products, hazardous decomposition products will emit hydrogen chloride in a fire. Emission of HCl begins at 525°F with faster emission as the temperature rises.

HAZARDOUS POLYMERIZATION:

Will not occur.

SECTION V - HEALTH HAZARD DATA

PRIMARY ROUTE(S) OF ENTRY: Inhalation

HEALTH HAZARDS (ACUTE AND CHRONIC)

INHALATION:

Acute: Mechanical irritation of the mouth, nose and throat.

Chronic: Many studies have been conducted to determine the potential long term effects of fibrous glass inhalation. In man, epidemiology studies of workers employed for up to 40 years in fibrous glass manufacturing do not show any consistent evidence of pulmonary disease, either malignant or nonmalignant. Studies in animals using the natural route of exposure - i.e., inhalation - have not shown evidence of a carcinogenic effect. Artificial implantation of large quantities of very fine glass fibers in the chest or abdominal cavities of laboratory animals has caused cancer. One animal study, in which large quantities of very fine diameter glass fibers were injected into the trachea of hamsters, reported cancer.

SKIN CONTACT:

Acute: Transient mechanical irritation.

Chronic: None

EYE CONTACT:

Acute: Direct contact will cause mechanical irritation.

Chronic: None

INGESTION:

Acute: Unlikely to occur. Observe individual; if symptoms develop, consult physician.

Chronic: None known

SIGNS AND SYMPTOMS OF EXPOSURE:

Itching and possible irritation of upper respiratory tract.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:

Any condition generally aggravated by mechanical irritants in air or on skin.

EXPOSURE LIMITS:

<u>HAZARDOUS INGREDIENTS</u>	<u>OSHA PEL (mg/M³)</u>	<u>ACGIH TLV (mg/M³)</u>	<u>OTHER RECOMMENDED (SOURCE)</u>
Fibrous Glass	15 mg/M ³	10 mg/M ³	3 x 10 ⁶ fibers/M ³ (NIOSH)

CARCINOGENICITY:

<u>HAZARDOUS INGREDIENTS</u>	<u>NTP LISTED</u>	<u>IARC LISTED</u>	<u>OSHA REGULATED</u>
Fibrous Glass	No	No	No

SECTION VI - EMERGENCY & FIRST - AID PROCEDURES

INHALATION:

Vinyl faced products in fire conditions - administer oxygen; consult physician immediately.

SKIN:

Wash with soap and running water.

EYES:

Flush with running water for at least 15 minutes.

SECTION VII - SPECIAL HANDLING INFORMATION

VENTILATION:

Ambient

RESPIRATORY PROTECTION:

Not normally required. If TLV is exceeded or irritation occurs use a respirator such as 3M model 8710 or equivalent for protection against nuisance dust.

PROTECTIVE CLOTHING:

Gloves, long sleeved, loose fitting clothing, long pants. A cap may be useful when handling material overhead.

EYE PROTECTION: Safety glasses

WORK/HYGIENIC PRACTICES:

Shower at end of work day. Wash work clothes separately and wipe out washer at end of cycle.

SECTION VIII - SPILL, LEAK & DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT):

NA

1770 The Exchange, Suite 130
Atlanta, Georgia 30339
Phone: (404) 955-9118

GVL/jb/040286

M A T E R I A L S A F E T Y D A T A S H E E T

1. MATERIAL IDENTIFICATION

Product Name: Low, Medium & High Carbon wire and wire products; stainless wires.
Chemical Family: Metals.
Form: Round and Profiled wire and wire products.
Issue Date: April 2, 1986

2. HAZARDOUS INGREDIENTS

<u>MATERIAL OR COMPONENT</u>	<u>CAS NUMBER</u>	<u>% WEIGHT</u>	<u>EXPOSURE LIMITS</u>	
			<u>OSHA PEL (mg/m³)</u>	<u>ACGIH TLV (mg/m³)</u>
<u>Alloy Elements</u>				
Carbon (C)	7440-44-0	0.00-2.0	None Listed	None Listed
Chromium (Cr)	7440-47-3	0.00-30	1.0 as chrome	0.5 as chrome salts
Copper (Cu)	7440-50-3	0.00-3.0	0.2 as copper; 1.0 dust	0.2 as fume; 1.0 dust
Lead (Pb)	7439-92-1	0.00-0.35	0.05 as fume & dust	0.15 as dust & fume
Manganese (Mn)	7439-96-5	0.05-15.0	5 as manganese	5 as dust, 1 fume
Molybdenum (Mo)	7439-98-7	0.00-10	15 as insoluble compds	10 as insoluble compd
Nickel (Ni)	7440-02-0	0.00-37	1.0 as Nickel	1.0 as Nickel
Phosphorous (P)	7723-14-0	0.15 Max.	0.1 as Phosphorous	0.1 as Phosphorous
Silicon (Si)	7440-21-3	0.00-3	None Listed	10 total dust
Sulfur (S)	7704-34-9	0.000-0.35	13 Sulfur dioxide	5 Sulfur dioxide
Tungsten (W)	7740-33-7	0.00-20	None Listed	5 insoluble compds
Vanadium (V)	7440-62-2	0.00-5.0	0.5 dust; 0.1 fume	0.05 dust & fume
Aluminum (Al)	7429-90-5	0.00-0.5	Not Available	5 as welding fume
Tellurium (Te)	12394-80-9	0.00-0.07	0.1 as tellurium compds	0.1 as Tellurium compd
Boron (B)	7440-42-8	0.00-0.01	15 as Boron Oxide	10 as Boron Oxide
Iron (Fe)	7439-89-5	100 Max.	10 iron fume; N/A as Fe	N/A as iron; 5 as Fe
Zirconium (Zr)	7440-67-2	0.0-0.05	5 as Zr	5 as Zr
Titanium (Ti)	7440-32-6	0.00-0.07	13	10 as Total dust
Cobalt (Co)	7440-48-4	0.00-1.00	0.1 as metal, dust, fume	0.1 as metal, dust, fume
Niobium (Nb)	7440-03-1	0.00-0.07	0.2	0.2
Nitrogen (N)	10102-44-0	0.00-2.00	6.0 as NO ₂	6.0 as NO ₂
Antimony (Sb)	1309-64-4	0.00-1.00	0.5	0.5
<hr/>				
Zinc (Zn) coating	1325-13-2	98	5.0 as fume	5.0 as fume
Chromium (Cr) coating	7440-47-3	90	1.0 as chrome	0.5 as chrome salts
Aluminum (Al) coating	7429-90-5	98	Not Available	5.0 as fume
Tin (Sn) coating	7440-31-5	98	2 as tin	2 as tin
Lead (Pb) coating	7439-92-1	96	0.05 as dust & fume	0.15 as dust

The previous listing is a summary of elements used in alloying steel. Various grades of steel will contain different combinations of these elements. Trace elements may also be present in minute amounts.

3. PHYSICAL DATA

Melting Point:	Base Metal 2750°F	
Vapor Pressure (MM HG at 20°C)		Not Applicable
Specific Gravity: (Water + 1)		Greater than 7
Vapor Density (Air "1)		Not Applicable
Evaporation Rate		Not Applicable
Boiling Point		Not Applicable
Solubility in Water		Not Applicable
Appearance & Odor:		Gray, Silvery, Odorless Black with metallic lustre

4. FIRE & EXPLOSION DATA

Steel products in the solid state do not present a fire or explosion hazard.

5. HEALTH/SAFETY INFORMATION

Steel products in the natural state do not present an inhalation, ingestion, or contact health hazard. However, operations such as welding, burning, sawing, brazing, grinding, and possibly machining, which results in elevating the temperature of the product to or above its melting point or results in the generation of airborne particulates may present hazards. The above operations should be performed in well ventilated areas. The major exposure hazard is inhalation.

Effects of overexposure are as follows:

Acute: Excessive inhalation of metallic fumes and dusts may result in irritation of eyes, nose, and throat. Also high concentrations of fumes and dusts of iron-oxide, manganese, copper, zinc and lead may result in metal fume fever. Typical symptoms consist of a metallic taste in the mouth, dryness and irritation of the throat, chills and fever, and usually last from 12 to 48 hours.

Chronic: Chronic and prolonged inhalation of high concentrations of fumes or dust of the following elements may lead to the condition listed opposite to the elements.

- Aluminum - May initiate fibrotic changes to lung tissue.
- Chromium - Various forms of dermatitis, inflammation and/or ulceration of upper respiratory tract, and possible cancer of nasal passages and lungs.
- Copper - Pulmonary effects.
- Iron (iron-oxide) - Pulmonary effects, siderosis
- Lead - Prolonged exposures can cause behavioral changes, kidney damage, periphery neuropathy characterized by decreased hand-grip strength and adverse reproductive effects.
- Manganese - Bronchitis, pneumonitis, lack of coordination.
- Molybdenum - Pain in Joints, hands, knees and feet.
Morphological changes in the liver, kidneys and spleen; anemia, diarrhea, coma, deformity and growth retardation.
- Nickel - SAME AS CHROMIUM.
- Phosphorous - Necrosis of the mandible.
- Sulfur (as sulfur dioxide) - Edema of the lungs.
- Tellurium - Garlic odor of breath and perspiration, metallic taste in mouth, dryness of the mouth, inhibition of sweat function, anorexia, nausea.

- Tungsten - Some evidence of pulmonary involvement such as cough.
- Vanadium - Emphysema, pneumonia.
- Zinc - Arthritis, lameness and inflammation of the gastro-intestinal tract reported from animal studies.

First Aid

INHALATION of airborne fumes and particulates, remove to fresh air. Get medical attention:

Eye Contact: Immediately flush well with running water. Get medical attention.

Skin Contact: If irritation develops, remove clothing and wash well with soap and water. If condition persists, get medical attention.

6. REACTIVITY DATA

STABILITY: Stable except at extreme heat (above 2750°F).

INCOMPATIBILITY: React with strong acids to form hydrogen gas.

HAZARDOUS DECOMPOSITION PRODUCTS: Smoke fumes and oxide of iron, manganese, chromium, nickel and molybdenum when welding or flame cutting. Area to be kept well ventilated.

7. SPILL OR LEAK PROCEDURES:

Not applicable to steel in the solid state.

8. SPECIAL PROTECTION INFORMATION:

RESPIRATORY: NIOSH-approved respirators should be used to avoid excessive inhalation of fumes and particulates. Ventilation should be provided during welding, burning, grinding and other machining operations.

EYE: Safety glasses should be used when sawing, burning, welding, grinding, and other machining operations.

OTHER CLOTHING & EQUIPMENT: Additional clothing and protective equipment may be needed depending on the operations.

9. SPECIAL PRECAUTIONS:

Good housekeeping practices should be maintained at all times in the work area.

Safety and working equipment should be maintained in good condition.

Steel may be protected with various coatings, oil or paints. In such cases, and depending on the nature of the material, special precautions should be taken when handling, cutting, welding, burning and any other operations that may result in the formation of fumes or dust.

DISCLAIMER

The information in this MSDA was obtained from sources which we believe are reliable. The information, however, is provided without any representation or warranty, expressed or implied, regarding its accuracy or correctness.

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BEKAERT INTERNATIONAL TRADE-AMERICA, INC.

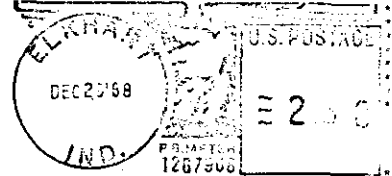


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